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Application No.: 09/824330

Case No.: 56081US002

REMARKS

Claims 1, 2, 4-7, 9-11, 13, and 14 are pending in this application. Claims 3, 8, and 12 were previously canceled. Claim 1 is currently amended. Reconsideration of the application is requested in view of the amendment and following remarks.

Support for the Amendment

Claim 1 has been amended in order to clarify the invention. Support for the amendment is found, for example, on page 2, lines 16-25 and from page 6, line 21 through page 8, line 17. No new matter is added by this amendment.

§ 112 Rejection

Claims 1 is rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Examiner notes that the first step of claim 1 recites "providing at least one plug flow reactor" and the second step recites that one or more components are added to "the plug flow reactor". The Examiner asserts that it is unclear which reactor is being referring to in the second step because there may be a plurality of reactors. For the sake of clarity, Applicants have amended claim 1 to recite in step two that the components are added to "at least one plug flow reactor" thus indicating that the components need only be added to a single plug flow reactor if multiple reactors are present and that any of the plug flow reactors will suffice. Thus, Applicants submit that the rejection of claim 1 under 35 USC § 112 has been overcome and should be withdrawn.

§ 102 and § 103 Rejections

Claims 1, 2, 4, 6, and 9-12 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Bergh et al., U.S. Patent No. 6,749,814. In addition, claims 5 and 7, and claims 13 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bergh et al. in view of Priddy (U.S. Patent No. 6,572,814) and/or Citron (U.S. 6,586,541). Because the Bergh reference, both alone and in combination with Priddy and/or Citron, fails to teach or suggest all the elements of amended claim 1, Applicants respectfully request withdrawal of these rejections.

Application No.: 09/824330

Case No.: 56081US002

The Examiner asserts that Bergh not only describes changing a reaction variable between different reactors to generate different products, but also describes varying reaction conditions at different points in time within a single plug flow reactor (Office Action, pp. 4-5). In support of this reading, the Examiner has cited several passages from columns 43-45 of Bergh that allegedly describe varying reaction conditions at different times within a reactor. However, the bold passages highlighted by the Examiner only seem to describe varying conditions between reactors (e.g., providing reaction condition A in one reactor and reaction condition B in a different reactor) and do not appear to describe varying conditions within the same reactor over time (e.g., providing reaction condition A and reaction condition B in the same reactor at different times). For example, the first bold passage cited by the Examiner states that temperature can be varied between groups of microreactors or "between each of the microreactors." Similarly, in column 43, lines 40-43, Bergh explains, "reaction conditions can be controllably varied among the plurality of microreactors – either between one group of microreactors and another group of microreactors, or between each of the plurality of microreactors." As indicated by the use of the word "between" in this context, variability is achieved by changing reaction conditions from one reactor to another reactor. Thus, these passages describe providing different conditions in two or more different reactors (e.g., temperature A in one reactor and temperature B in a different reactor), rather than changing reaction conditions within the same reactor over time.

In subsequent passages cited by the Examiner, Bergh states that the pressures and residence times of the microreactors can also be "varied for a group of microreactors or for each of the microreactors." Although these particular passages don't include the word "between" it is nevertheless clear that, when read in context with the surrounding description, these passages do not describe changing the reaction conditions within a given reactor over time (e.g., different pressures at different times in the same reactor), but rather describe changing reaction conditions between each of the reactors (e.g., pressure A in one reactor, pressure B in a different reactor). For example, in column 45, lines 3-19, Bergh gives an example of an embodiment in which residence times are varied for each of the reactors. For this embodiment, Bergh states, "varying residence times for different reactors" is achieved by providing a flow distribution network "having varying flow conditions (and correspondingly varying conductance) between different flow channels such

Application No.: 09/824330

Case No.: 56081US002

that the flow rates to different microreactors (or sets of microreactors) varies.” (emphasis added) Here again Bergh appears to be describing a system in which each reactor has a different set of reaction conditions from the other reactors, as opposed to a system such as that recited in the present claims in which reaction conditions within a given reactor are varied over time.

Although these passages from Bergh draw a distinction between varying conditions between “a group of microreactors” and varying conditions between “each individual microreactor” Applicants would like to point out that the latter scenario is not the same as varying reaction conditions within a given reactor over time. When these passages describe varying reaction conditions between individual microreactors, they are referring to a system in which a first individual reactor has reaction condition A and a second individual microreactor has reaction condition B. When they describe varying conditions between a group of reactors, they are referring to a system in which a first set of multiple reactors all have reaction condition A and a second set of multiple reactors all have another reaction condition B. In neither of these scenarios does Bergh describe taking a given reactor and varying its reaction condition over time such that both reaction condition A and reaction condition B occur in the same reactor at different times.

Applicants’ interpretation of Bergh is further supported by the final bold passage cited by the Examiner. In this passage, Bergh states that “the same reaction can be effected simultaneously in two or more microreactors under reaction conditions that are substantially identical in each microreactor, except as to the controlled variation of [one or more reaction conditions].” Again, this passage indicates that different products are achieved by altering a reaction variable between two or more different reactors. In contrast, the present invention involves changing a reaction variable over time within a given reactor. Thus, the claimed invention is different from the process described in Bergh.

The Examiner has argued that, even if Applicants’ interpretation of Bergh is correct, the claims of the present application would nevertheless read on Bergh because claim 1 is not limited to introducing or changing over time at least one variable within a single reactor, and would also encompass a method in which conditions are varied in a group of reactors (Office Action, p. 7). Although the present invention may be part of a larger system that contains a collection of multiple reactors, or may be performed on a large scale with several reactors, at least one given reactor in the collection must have a reaction variable that changes over time within that same reactor. For the

JUL 05 2007

Application No.: 09/824330

Case No.: 56081US002

sake of clarity, Applicants have amended claim 1 to specifically recite that at least one of the reactors to which the components are added has a reaction variable that is changed over time. Although this doesn't preclude the use of multiple reactors, there must be at least one reactor within the collection that has a reaction variable that is changed over time (i.e., at least one reactor having a reaction condition A at one time and a reaction condition B at a different time within the same reactor) to produce a combinatorial library of materials. Bergh, on the other hand, varies reaction conditions by changing reaction conditions from one reactor to the next. In other words, Bergh varies conditions over space (e.g., two different reaction conditions are provided in two different reactors, i.e. two different physical locations) whereas the present invention varies conditions over time (e.g., two different reaction conditions are provided in the same reactor at different points in time). In this respect, Applicants believe the present claims are distinguishable over the Bergh reference.

Priddy and Citron are merely cited as teaching certain limitations found in the dependent claims. They do not compensate for the above-mentioned deficiencies of Bergh.

In view of the foregoing, Applicants respectfully submit that the rejections under 35 USC § 102 and § 103 have been overcome and should be withdrawn.

Conclusion

Applicants request reconsideration of the Application in view of the foregoing amendments and remarks. Allowance of the pending claims is earnestly solicited.

Respectfully submitted,

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Date

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